

WHAT IS CLAIMED IS:

1. A porous sintered body of a calcium phosphate-based ceramic having a porosity of 80 % or more.

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5 2. The porous sintered body according to claim 1, wherein said porous sintered body has an average pore-diameter of 5 to 1500  $\mu\text{m}$ .

3. The porous sintered body according to claim 1, wherein a weight ratio of Ca/P in said calcium phosphate-based ceramic is 1.6 to 1.7.

4. The porous sintered body according to claim 1, wherein said calcium phosphate-based ceramic is hydroxyapatite.

10 5. A method for producing a porous sintered body of a calcium phosphate-based ceramic having a porosity of 80 % or more, wherein said method comprises the steps of: (1) preparing a slurry comprising a calcium phosphate-based ceramic powder, a water-soluble high molecular compound and a nonionic surface active agent; (2) stirring said slurry vigorously to froth said slurry; (3) solidifying the frothed slurry into a gel; and (4) drying and sintering said gel.

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15 6. The method for producing a porous sintered body according to claim 5, wherein said calcium phosphate-based ceramic powder is a secondary particle having an average particle diameter of 0.5 to 80  $\mu\text{m}$  prepared from a primary  
20 particle having an average particle diameter of 100 nm or less.

7. The method for producing a porous sintered body according to claim 5, wherein said water-soluble high molecular compound is a cellulose derivative.

8. The method for producing a porous sintered body according to claim 5, wherein said nonionic surface active agent is a fatty acid alkanolamide surface  
25 active agent.

9. The method for producing a porous sintered body according to claim 5, wherein 1 to 10 part by weight of said water-soluble high molecular compound and 1 to 10 part by weight of said nonionic surface active agent are used with 100 parts by weight of said calcium phosphate-based ceramic powder.

10. The method for producing a porous sintered body according to claim 5, wherein a weight ratio of the total of said calcium phosphate-based ceramic powder, said water-soluble high molecular compound and said nonionic surface active agent is 20 to 50 weight % based on 100 weight % of said slurry.

5 11. The method for producing a porous sintered body according to claim 5, wherein said slurry is stirred under a stirring condition of 50 W/L or more to froth said slurry.

12. The method for producing a porous sintered body according to claim 5, wherein said slurry is stirred at 5 to 20 °C to froth said slurry.

10 13. The method for producing a porous sintered body according to claim 5, wherein said nonionic surface active agent is free of a metal ion and a sulfate group.

14. The method for producing a porous sintered body according to claim 5, wherein said slurry is stirred while passing a gas through said slurry to froth said slurry.

15. The method for producing a porous sintered body according to claim 5, wherein said calcium phosphate-based ceramic is hydroxyapatite.